WHAT ABOUT THE TIGERS? A STUDY OF ONE UNDELIVERED
EMERGENCY ALERT SYSTEM (EAS) LAHAR (DEADLY MUDSLIDE)
WARNING MESSAGE

Abstract

Federal Communication Commission regulations mandate regular testing of Emergency Alert System equipment. Emergency alerts are not mandatory. They are voluntary with one exception -- messages from the President of the United States. In 2006, one small radio station broadcast an emergency lahar (deadly mudflow) evacuation warning. No major radio or television station in the adjacent metropolitan area (with 100,000 people at risk) relayed that warning.

This research suggests seven reasons why major media broadcasters did not relay that lahar warning: EAS was federally designed for presidential use; it is now voluntary for all other uses; there is no taxpayer funding to pay for new equipment or air time; computers do it; people who program computers make mistakes; warnings might panic listeners/viewers who could be injured and sue the stations; participants do not understand their role in EAS. Implications are discussed and suggestions offered for further research.

Introduction – What about the tigers?

"Tyger Tyger, burning bright,
In the forests of the night" – William Blake

Many in the emergency community are familiar with the January 18, 2002

Minot, North Dakota 911 dispatch transcript which reads in part:

...**MINOT RESIDENT 2:** ...My daughter ran out the front door!
911 DISPATCH: She ran out? How old is your daughter?
MINOT RESIDENT 2: She's twelve. Is she going to die out there? --You guys have to hurry, please!
911 DISPATCH: Just stay inside, OK? Tell everybody in your house to --
MINOT RESIDENT 2: ...Burn her lungs? Oh, my God! I'm sorry! I didn't know what to do! Oh, she's going to die. She can't breathe out there. Where are you guys? It's getting...
911 DISPATCH: OK. Are your doors closed?
MINOT RESIDENT 2: Yeah, we're closed up, but we can't breathe.
...**911 DISPATCH:** Yeah. There's a train derailment west of town. Stay in your house with the doors and windows closed. And we'll direct you when we have other directions for you.
MINOT RESIDENT 5: Over what media?
911 DISPATCH: Probably either on EBS radio, KCJB radio, or cable TV system.
MINOT RESIDENT 5: OK.

...**911 DISPATCH:** 911. What is your emergency?
MINOT RESIDENT 6: Well, I'm wondering about this anhydrous.
911 DISPATCH: Sir, stay in your home. Treat it like smoke. Turn your furnace off. Put towels underneath the doors. Go in your bathroom. Turn the shower on, and cover your face with wet towels.
MINOT RESIDENT 6: OK.
911 DISPATCH: And stay there until further instructions by law enforcement.
MINOT RESIDENT 6: OK, because the PA system doesn't work.
911 DISPATCH: I understand that. And also, we've been putting it out over the cable TV and the radio.
MINOT RESIDENT 6: What's the radio station?
911 DISPATCH: All the radio stations, sir.
MINOT RESIDENT 6: I had it on. I haven't heard it once.

The EAS messages from the emergency managers were not relayed to the threatened public. The girl that ran outside survived but one person died. More than 1,000 needed medical care. Lawsuits are ongoing (Democracy Now 2007).

Communities that face specific environmental dangers such as floods, fires, earthquakes, and tsunamis are dependent on communication systems that provide warnings to help minimize the loss of life. According to the FCC website, the United States broadcast media Emergency Alert System replaced the EBS warning system. A traditional metaphor of a tiger stalking a village and an expert calling for use of the village drum to warn residents helps conceptualize previously overlooked evidence that demonstrated the lack of consistency and reliability of the EAS disaster warning system. Government and research documents show that a broadcast station is not required to "hand over" the drum and sometimes does not. The Federal Communication Commission (FCC) 05-191 EB Docket No. 04-296, says the system is voluntary: but many sport/all-talk stations do not voluntarily participate in the EAS. A study by B. L. Beebe (2004) another by Mitchell et al. (2005), and a Virginia Governor's report (2003) reveal that station personnel sometimes have not relayed life-saving messages. The July 17, 2006 Congressional Research Service Report for Congress (Order Code RL32527) clarifies "The participation…is voluntary." A study by Redd published in the *Journal of Black Studies* in 1991 cites FCC, 84 U.S. 977 (1981) which reveals that the old public service announcement (PSA) system where EBS messages used to be "counted" as service time was eliminated. There is no requirement for a set amount of service time. Many service time spots have subsequently been replaced by paid cause-marketing messages, (Teinowitz, 2002 and Kaiser Family Foundation, 2002).

There is some academic research that indicates that EAS messages are not consistently relayed *to* people in disaster areas and that some people may be confused by lack of information and die. How could that be true? And if it is true, why would that happen?

History of United States public service warning system

The United States commercial broadcast system was originally designed to serve the public interest by transmitting essential information. It was village drum intended to warn us of tigers stalking the village. The Communication Act of 1934 established what is now called the Federal Communications Commission or FCC. According to testimony preceding adoption of the act, legislators modeled the Communication Act after the Transportation Act of 1920. The bill's authors spoke of "carriers" of information (FCC, 1934 definitions section 3, h, 1934). Testimony indicates that authors of the original act desired to transport information to people from experts in order to keep them safe and informed.

The 1934 Act required broadcasters (at that time, radio) to serve public interest in order to qualify for a license. Actual words were, "The Commission, if public convenience, interest, or necessity will be served thereby, subject to the limitations of this Act, shall grant to any applicant therefore a station license provided for by this Act" (Communications Act of 1934, S. 307 (a) p. 22). However, the study by Redd (1991) shows that substantial deregulation in April 1981 *removed* the requirement for transporting public service announcements (PSAs). Redd (1991) also noted that prior to deregulation AM stations were required to use 8% of broadcast time on public affairs, news and PSAs while FM stations had a requirement of 6% of air time for these "nonentertainment" functions. A Kaiser

Family Foundation study by LaMay (2002) showed that public service air time had gone down to one-half of one percent.

Beginning in April 1981, these FCC regulations allowed broadcast stations the option of defining "service to the public" in any manner they felt appropriate. Many broadcast stations substituted cause-marketing minutes (paid time) for general news and other unpaid public service messages (Redd, 1991 and LaMay, C., 2002). Not only is public service today voluntary, in 2006, the FCC regulations also changed participation in the Emergency Alert System to be voluntary with the exception of tests and presidential messages.

FCC revisions in the Telecommunications Act of 1996 allowed mergers that also may have minimized public access to essential information. Klinenberg (2007) thoroughly outlines the consolidation aspect of this problem. As media consolidate, local radio and television stations are disappearing and being replaced by large corporations although Hindman, and Coyle, (1999) documented that local stations are in the best position to transmit information critically important to the local audiences. According to Klinenberg, major consolidations have reduced or removed local staff and local programming. When remote computers accomplish programming from distant regional offices, local stations have difficulty providing essential local information to local people. Reports indicate that in some cases the village drum has been sent away to another much bigger village and each time "our" little village has to send a runner to see if we can borrow the drum for urgent tiger warnings. One example would be the infamous Minot North Dakota Chemical spill in 2002 where transcripts cited above show that event clearly shows that area broadcasters did not relay EAS messages. Another document confirms "Many of the [communication] challenges are attributable to the decisions on programming being made outside the service area of the radio stations," (Virginia Governor's report, 2003, p. 53).

Emergency Broadcast System, old technology, mandatory

The Emergency Broadcast System (EBS) originated in 1963 and remained in use until 1997. It was intended to give the public Civil Defense instructions in times of crisis. FCC license procedures for radio and television mandated EBS use and expanded the uses through interagency efforts with the Federal Emergency Management Agency and the National Weather Service which permitted the system to be effectively used for state and local emergencies. Between 1976 and 1996 EBS was activated thousands of times to broadcast state and local civil emergency messages and warnings of severe weather hazards. EBS weekly tests bonded Americans in a common understanding and national collectiveness that implied a strong social contract between the United States public and its government.

Emergency Alert System: new technology, voluntary

As the EBS equipment aged, newer technology such as cable TV and the internet came into wide use prompting total overhaul of EBS. Around 1994, according to the EAS website, the EAS began to replace EBS. Revisions in the language of the FCC regulations encouraged major technical upgrades in the equipment and in the spirit of deregulation, "voluntary" replaced "mandatory". The adoption report EB Docket No. 04-296 reveals contradictory discourse that is a focus of this study. Some important passages in the FCC regulation released November 10, 2005 are quoted at length below. First the language implies people expect messages to be delivered.

> An increasingly large percentage of television viewers and radio listeners receive their programming from systems that may have no independent duty to provide EAS, or any other alert and warning system, to their customers. For example, as of 2005, almost 25% of TV households subscribed to Direct

Broadcast Satellite (DBS) services, yet such satellite services are under no obligation to participate in EAS (EB Docket No. 04-296).

The above quote suggests interest in continuing warning services to the American public. However, the same document reveals what sounds like a complete reversal and apparent contradiction for communicating any non-presidential messages.

EAS Structure Under the Commission's rules, national activation of EAS for a Presidential message is designed to provide the President the capability to transmit within ten minutes from any location at any time, and must take priority over any other message and preempt other messages in progress. Broadcast stations and cable systems covered by the Commission's EAS rules must cease their normal broadcasting and transmit such a Presidential message. *Use of EAS for state or local emergency information is voluntary. Broadcasters and cable systems may decide individually whether to transmit such messages that originate at the state or local level. The Commission's rules impose EAS obligations only on analog radio and television* (italics added).

The CRS report for Congress July 17, 2006 Order Code RL 32527 states,

The FCC requires broadcast and cable stations to install FCC-certified EAS equipment as a condition of licensing… *For the broadcast of non-federal emergency messages, the FCC has ruled that the broadcasters, not a state or local authority, have the final authority to transmit a message* (italics added).

A CRS report of January 30, 2007 adds,

The 110th Congress could choose to review the issue of ensuring state and local access to the new emergency alert networks *or possibly reconsider the federal role in assuring a fully-developed national network* (italics added).

Meta-analysis of warning systems

Sorensen (2005) conducted a systematic "review of 20 years of progress" of hazard warning systems. The researcher defined a warning system as that which can "detect impending disaster, and give that information to people at risk, and enable those in danger to make decisions and take action." His research addressed the old EBS and the new EAS. In his definition and throughout Sorensen's (2005) research report he *assumes* a "village drum" exists.

Sorensen (2005) focused on advances in prediction and forecasting warning. Technologies have improved – to include the EAS computerized system which is capable of being programmed and automated. Sorensen (2005) concluded that the primary reason for continuing communication problems was that the United States lacks a comprehensive national warning strategy. He *erroneously* predicted in the May 2005 publication that "…all commercial broadcast stations and cable companies will *be required* (italics added) to participate in the system, which was implemented in January 1997."

There seems to be a widespread assumption in the literature that disaster warning messages are effectively relayed to the public. However evidence is clear that at least some warnings have *not* been appropriately relayed from experts to the public (Beebe, 2004 and Mitchell, 2005). As one more example, anecdotal evidence in newspaper clips from the state of Hawaii (Francica, J., 2006) documents problems with tsunamis message relay following the October and December 2006 earthquakes. One local news clips says state officials are "investigating" why December quake/tsunami messages waited for relay for nearly three hours -- until after the football game.

Renewed interest in disaster communication

Large catastrophic events such as the September 11, 2001 terrorist attack on the World Trade Center, the Indonesian Tsunami which killed almost a quarter of a

million people in 2004, plus the multistate Hurricane Katrina in 2005, help explain renewed interest in public warning communication. The topic of delivering essential life-saving information to the public has received much recent attention, in documents such as the Tsunami Preparedness Act, and section 102 National Alert System (2005). The focus included aspects of communication (such as communication between local and state responders), while assuming the functionality and reliability of the EAS (Sorensen, 2005) which I refer to as the metaphorically as the "village drum." Researchers studied problems with communication during and after catastrophic events such as Hurricane Katrina, 2005, the Indonesian Tsunami 2004, major earthquakes, tornadoes and fires. Commercial broadcast stations often give disasters maximum coverage. Stations depict the unusual events as human-interest stories and as opportunities to be critical of government response to human misery (Quarantelli, 1997; Smith, 1995). However, basic EAS messages even those that might save lives and prevent property damage often remain undelivered (Carroll et al., 2005; by Darienzo, Aya, Crawford, Gibbs Whitmore, Wilde and Yanagi (2005); Taylor et al., 2005; Kepner, 2006).

<div align="center">Theoretical Framework</div>

<div align="center">*Social contract theory*</div>

Social contract helps us explain the implicit responsibility of government for the well-being of its people. Ever since prehistoric times there have been agreements for communicating warnings to village members. According to the *Stanford Encyclopedia of Philosophy* social contract theorists date back to Socrates, Hobbes, Locke, Kant, and Rousseau. This encyclopedia notes that political social contract theorist John Rawls "effectively resurrected social contract theory in the second half of the 20th century" and brought this useful theory back to contemporary importance (*Internet Encyclopedia of Philosophy*, 2006). Citizen

expectations of a "village drummer" to relay life-saving information and to maintain partnerships with local, state and national officials is one modern kind of social contract.

Diffusion Theory

Rogers (1995/2003) defined diffusion as "the process in which an innovation is communicated through certain channels over time among members of the social system. It is a special type of communication, in that the messages are concerned with new ideas." One way to define a warning is that it is a "new idea" for the "village." Rogers assumes, as do other researchers, that experts provide information for the media to transmit to society and that such a flow occurs – but for EAS warnings that is inconsistent at best. Yet other aspects of diffusion may be in play to help relay messages.

No Mandatory EAS Messages Relayed

However, no mandatory EAS messages have ever been relayed – for one clear reason. The president did not activate EAS to do so. Before Hurricane Katrina many local and state officials and the National Weather Service, indicated in the days prior to landfall, that Katrina was "the big one" emergency management specialists had been predicting for many years. One participant in congressional hearings, Heppner (2006) an advocate for people with hearing disabilities, in testifying before the FCC's panel discussion on communications following Hurricane Katrina noted "FCC regulations give discretion to determine what constitutes an emergency; perhaps if the national EAS were activated even TV broadcasters would have recognized Katrina's importance." One can only speculate how the situation might have been different if a nationally relayed EAS message from the president

asked the entire country to "pitch in" to help get friends and relatives out of New Orleans before the hurricane hit.

After the World Trade Center bombing news writer O'Meara, K. P. (2001) wrote an article titled "Alert System's Deafening Silence; Billions of dollars have been spent to establish and maintain a national Emergency Alert System in the interest of public safety. So why wasn't it used on 9/11? O'Meara (2001) notes,

> It also is fair to say that most have at least a cursory understanding that the purpose of the system is to allow the president to warn Americans of a national emergency and tell them how to respond, where to go, etc. Yet on Sept. 11, 2001, the system was used neither by President George W. Bush nor by New York Gov. George Pataki.

After quoting several high level officials the writer exclaims "The question will not go away: If the attacks of Sept. 11 weren't a national emergency worthy of the EAS, what is?

Unsubstantiated assumption of reliability may be problematic

An assumption in most disaster communication research appears to be that there is a functioning conduit or tool (village drum) to transport EAS messages to the American people. Some authors lump information and entertainment together, and using media systems theory, suggest that both can be satisfied by mass media consumption (Demers, 2005, p. 161). However that assumption is incorrect. Some important EAS messages have remained undelivered.

When the Minot area suffered a large anhydrous ammonia spill the local radio station was not available to assist the city to communicate effectively. The out-of-state parent company had automated the station with commercial programming and the local technicians could not interrupt the programs. One

person died, thousands were injured, and lawsuits continue (Beebe, 2004). In another example, Mitchell, Edmonds, Cutter, et al. (2005) described immediate "story" coverage of a chemical spill in Graniteville, South Carolina yet only 26.1% of evacuees learned of the need to evacuate from the media. The media received the EAS messages, did not relay them, did cover stories "about" the evacuation -- but not relay who, when, how or where to go. The research (Mitchell et al, 2005) shows most victims received their mandatory evacuation information from police/fire officials, reverse 911 calls or from family and friends.

<p align="center">The Problem and the Research Question</p>

The situation is that EAS is voluntary for most broadcasters. There is no longer a *consistent* system for relaying EAS or public service messages to the public. Messages such as "evacuate now by driving north on hwy X" or "boil water in village Y because of a bacterial contamination" or even more urgent messages such as "run to higher ground *now*, tsunami approaching" sometimes remain undelivered. Perhaps if we better understood reasons for lack of consistency we could address those issues and enhance the consistency, even within the chosen voluntary system. The research question is "*Why* is the EAS inconsistent?"

<p align="center">Methods</p>

In the summer of 2006, one State Emergency Management Division issued a lahar warning (deadly mudflow), in error. According to media stories, the warning was broadcast from only one 500 watt station (approximately a 5 mile transmission). This situation provided a good opportunity to explore lack of relay reliability. Since the lahar did not actually happen and no lives were lost, it seemed that media professionals involved might be more inclined to provide honest explanations about why they had not relayed the warning without any need to feel defensive to questions that in another context might elicit a sense of shame or guilt that could

inhibit or color the responses. This lahar warning, issued in error, provided a starting point for designing a study.

The present study is qualitative in nature with results used to study help hypotheses generation. The researcher could analyze themes and patterns to help focus on the complex issue. Study questions asked participants *why* they had not relayed the lahar warning.

Phone interviews were appropriate for this research since the media professionals responsible for relaying life-saving messages could describe what happened on the phone as well as in-person. They could elaborate on the ways they negotiated certain issues and explain their behaviors. The sampling frame for this study consisted of people involved in relaying EAS messages in an area where the potential exists for deadly lahars. The sample is a combination of a stratified sample and a convenience sample.

The stratification consisted of identifying at least one person in the office where emergency alerts and warnings are generated for relay (which is the State Emergency Management Division, EMD), at least one person responsible for relaying messages in a commercial radio station and one in a non-commercial station. The State Association of Broadcasters posted a list of state broadcasters on-line. Professionals from EMD provided a lahar risk map to superimpose on the geography of the list.

Using the map I selected a short list to interview professionals who had returned my phone calls (convenience). Additionally, I reached one media professional who became a participant by accident. In attempting to reach the EAS staff I was connected briefly to a news room where a news reporter provided useful information before transferring me to an EAS specialist for my interview. As I began to understand the function of the EAS technician, I added an interview with one of the technicians who is contracted to provide technical service to multiple

radio and television stations in the area of study. This made for a total of five participants. The phone interviews were tape recorded (after getting permission from the participants) and notes hand written as well, for backup. I transcribed notes and almost all of the interviews. All participants were interviewed at their work sites in their normal work environment.

Texts, written and posted on-line, about the current EAS were used as the second type of data. This type of data is also appropriate for this research because texts (and illustrations) about the system provided additional insights on use and consistency and served as cross-reference, triangulation and verification of information provided by participants.

Analysis

Using constant comparison and grounded theory, I read then re-read the interview notes and transcriptions and also repeatedly replayed the audio tapes. I used various textual discourses such as congressional and other reports, copies of legislative documents, on-line postings of governmental records, published papers and books for cross reference and triangulation to confirm facts as stated in the interviews. The following seven themes emerged.

1. EAS was federally designed for the president to communicate with the people in times of catastrophic events.
2. The system was previously mandatory and is now mostly voluntary except for presidential messages.
3. There is no taxpayer funding to buy or maintain the new equipment, so the relays have to be voluntary.

4. The warning system is better now because computer equipment, not people, makes the decisions. People are inconsistent and unreliable (implied or stated).

5. People program the machines.

6. If EAS messages result in injuries, people might sue the stations. Messages are voluntary so it is legal and fiscally prudent to avoid running messages and avoid potential financial liability.

7. Participants lack an understanding of the system.

Researcher bias

It is important in qualitative research to consider the researcher's perspective. I have a clear bias towards avoiding loss of life, particularly in situations where timely warnings might allow people to take action. My perspective, developed from years of work in the field as a disaster response reservist, is that not all people will take action to survive. Many other researchers document the problems of people not responding to warning messages. However, people cannot make a decision to act *or ignore* warnings if there is no initial warning such as a timely EAS relay. I attempted to be neutral in writing the research questions and in delivering those questions to interviewees. Interviewees were assured of confidentiality. There are no actual names in the transcribed notes. The original tapes are kept under lock and will be destroyed after research completion. However, it is possible that my bias was evident and influenced how interviewees answered the questions.

Results

Some sequences of original data as they relate to the themes offer further clarity to answering the research question (Why are EAS messages sometimes not relayed?). Examples are provided for each theme.

1. EAS was redesigned for a president to communicate with people during catastrophic events.

> EAS is principally designed to provide a president of the United States with resources to communicate immediately with the American public in the event of a national emergency. EAS compliance has become increasingly important in light of the FCC's recent creation of the Homeland Security Policy Council. (Birds-Eye Network Services, 2004).

2. The system was previously mandatory and is now mostly voluntary.

From one participant:

> Anything local or state in terms of the EAS is completely voluntary. So everybody gets to make their own choices and FCC only requires presidential alerts and tests to be broadcast. The FCC is federal and can only require national alerts and tests.

3. There is no taxpayer funding to buy or maintain equipment, so the relays must be voluntary.

From an interviewee:

> They [authorized emergency management officials] have EAS boxes. To get it from them to the broadcasters is a patchwork of radio repeaters basically.

One of the reasons it developed the way it has is because for the most part it's all unfunded at the state level.

From one of many printed documents:

"According to WCA, [Wireless Cable Association Inc.] the financial impact of our current rules is unnecessarily burdensome." (EB Docket No. 04-51 Regarding the Emergency Alert System) RM 10619 retrieved December 1, 2006 from http://www.fcc.gov/eb/Orders/2004/FCC-04-46A1.html

4. The warning system is better now because computer chips in the equipment, not people, make the decisions. People are unreliable (implied or stated).

This is a comment from one interviewee who monitors the EAS at a major station.

What was in place before was EBS. EBS used a daisy chain, where one broadcaster would be a primary station -- would broadcast -- would generate a broadcast message and other stations would receive it from them and it was a daisy chain of broadcast stations in Washington State. We recognized early on that that just doesn't work as a practical matter for one thing. You don't want to rely on people in radio stations who have to do things to make the chain complete. For starters broadcasters don't always have warm bodies in a chair in a studio. Many stations run unattended, especially overnight…They [authorized emergency managers] send out a complete message which contains both the data and the audio. Our [EAS] boxes here listen for an alert to record electronically, and then if the message matches the filter list, the programming, in other words the programmers are told, what kind of alerts to broadcast for what locations -- that kind of thing, then my box will wake up and either put it on the air immediately or hold it for 15 minutes and let a

human put it on the air. The filters are programmed to make the decision. Not all stations may have their box on full automatic. *Other stations may have their filters set up not to broadcast anything to radio and TV or cable system level* (italics added).

Documentary corroboration of how the system works supports the technician's description in the interview. An article called Insecurity Plagues Emergency Alert System by Kevin Poulsen, which appeared in Security Focus (2002) states that under the direction of the president, the system works this way:

> The alert begins with a burst of data coded by a low-speed modem, repeated three times. It's followed by an eight-second alert tone, and then spoken emergency information and instructions -- or a presidential address -- before another burst of data terminates the message.

5. People program the machines.

Four of the five participants affirmed that many stations do not buy the EAS equipment and one said, "We almost always "hold" messages if a commercial is playing". An EAS worker/participant explained "We run all messages first through the news department and let the news department decide if the alert message should be relayed or not." A few stations set up certain codes to relay immediately and automatically and others to codes not relay at all. One said "I send everything to the newsroom. I don't pay attention to what they do after that." The fifth participant apologized saying "I made a mistake. I meant to set the code for lahars to go through automatically" That EAS technician "learned a lesson" and that station will relay any future lahar warning. One participant added "We usually use the Amber Alerts. People are interested in lost children and that gets coverage." Reports posted on line from the Michigan and Washington Broadcaster Associations

confirm that Amber Alerts get counted for community service (Michigan, 2005 and Washington 2005).

6. There are liability issues.

When the accidental EBS activation of a lahar warning, issued in error, was not relayed to the population at risk, no one knew it was an error for about 45 minutes. If the warning had been for an actual event approximately 60,000 people could have died according to the emergency management interviewee. Yet one participant emphasized "if we ran that and someone had twisted an ankle running, we could have been sued." This theme, voiced by three of the five participants, clarifies that relaying warnings may open stations to financial liability.

8. Participants lack an understanding of the system.

The discourse from three of the five participants -- the media professional, the emergency management official and the technician -- reveals the last theme. Broadcasters and EAS technicians may not understand their life-saving role in the new EAS system. System process and components are not clear to everyone. The reporter participant stated that s/he did not know "anything about EAS" and "had no idea" s/he was supposed to relay the information. S/he thought s/he was getting the information for "assignment planning" only. The interaction was brief and the statement may have been an exaggeration, but the technician at the same station said "I just send it to the newsroom. I don't know what they do." Those two participants did not appear to know one another and worked at an LP1 (primary relay) in a greater metropolitan area – where hundreds of thousands of lives could be on the line with a late relay for some "codes" of events. And the third participant who added to this theme was the State official who noted "I don't think they realize how delays can cost lives".

<center>*What about Ethics?*</center>

Major broadcast media are no longer required under current FCC regulations to relay the EAS messages. Often ethics comes into play when laws are insufficient or unclear. However, one interviewee described an EAS tsunami warning issued from the Emergency Management Division of one state in 2005 that went "undelivered" while media professionals "waited" to see how bad it would be. It was *legal* for the media professionals to wait before relaying the EAS warning but this author questions whether that is ethical. Fortunately that specific tsunami was minor. Had it been major, many people in the coastal towns could have died. There may be ethical conflict in that what is good for the short term financial benefit of the broadcasters -- making EAS voluntary and allowing messages to "fit" in between commercial time -- may inadvertently cause loss of life.

Emergency Alert information mandates, relating to safety no longer exist in the law, yet the public expectation of "partnership" or social contract seems to remain. Perhaps the expectation is regularly and incorrectly reinforced because people hear the mandatory "tests" and consequently people expect to hear the actual warning "drum" when the village is threatened. Evidence indicates that may or may not happen. However, lives are often at stake. Is this an appropriate place for ethics?

Johannesen (2002) quotes Franklyn Haiman discussing this topic. Johannesen says Haiman is a scholar of the First Amendment in communication ethics, who proposed three criteria as guidance for what he describes as drawing "the line against writing morality into law." The first criteria is that a "moral standard concerning a particular behavior" should be codified in legislation only when there is a "near unanimous consensus in society, that the conduct in question is immoral." Second, Johannesen says "laws that codified ethical standards must embody credibility and fairness by being realistically enforceable and by not being

subject to capricious or unequal enforcement." Finally he quotes Haiman again, "free society will always draw the line between what it considers immoral and what makes it illegal. As close as possible to the more serious, direct, immediate, and physical of the harms, and it will leave to the operations of social pressure, education, and self-restraint the control of behaviors whose harm to others is less serious, less direct, less immediate, and less physical."

Johannesen ask us to consider what communication is unethical that should be regulated by law. It seems appropriate to ask the question in this way: what type of communication that if *not delivered* is unethical and should be regulated by law? EAS messages are a form of communication that can contribute to reducing the serious, direct, immediate and very physical harm. Using the Johannesen and Haiman criteria, perhaps we *should* use the law. Yet the slow nature of congressional and state legislative processes and the FCC political structure makes it seems unlikely that 26 years of public service deregulation can be reversed overnight.

<div align="center">Discussion</div>

This study confirmed that major media broadcasters did not relay a lahar warning (deadly volcanic mudslide) to the 100,000 local people at risk in their area. A literature review and anecdotal evidence revealed the pervasiveness of the problem of inconsistent relay of EAS warnings. Broadcasters did *not* relay tsunami warnings or chemical spill warnings to people at risk in at least four other states. There have been deaths.

Who is exactly "responsible" for the actual relay of messages to the public? The law previously made broadcasters responsible but no longer does so. Sorensen's (2005) meta-analysis of 20 years of progress on hazard warning systems showed that although there have been improvements in prediction, forecasting of natural disasters and new technologies for warnings, there is still no national warning

strategy, no responsibility assigned. Congressional reports confirm that to remain true in 2007. Some researchers indicate that media conglomerates and consolidation are responsible for the message relay inconsistency (Klinenberg, 2007; McChesney, 2004). However it seems that large conglomerates could just as easily program EAS equipment to respond to selected EAS codes as small stations and even cover more territory. This research suggests media growth and size are not the only issues. The most central problem may be that there is no longer a mandate for public service or a clear definition of voluntary public service. The law only requires EAS to provide the President of the United States with the resources to communicate immediately with the American public in the event of a national emergency. Federal EAS compliance has become increasingly important in light of the FCC's recent creation of the Homeland Security Policy Council. However, there have been no mandatory federal presidential messages, not for 9/11 or Hurricane Katrina or any event to date.

Yet, tsunami researchers emphasize, warning "systems that can provide state and local service must be readily available." (Dabrienzo, M., Aya, A., Crawford G. L., Gibbs, D., Whitmore, P. M., Wilde, T., & Yanagi, B. S., 2005). However this paper documents that EAS participation for such messages remains voluntary. Most emergencies originate at the state and local level according to Dabrienzo, et at., (2005) and it appears that many researchers (Klinenberg, 2007; Sorenson, 2005; McChesney, 2004) *incorrectly assume* reliability of a "village drum" to communicate "*to*" the American people. This may be a dangerous assumption.

Limits and strengths of this study

This is a very limited study with only five participants (including the accidental connection to the news room). One strength of qualitative research is that deep exploration of discourse of carefully selected participants can offer insight into processes and meaning of events especially when the accuracy of the

information can be cross-referenced or triangulated with other discourse. It is difficult to understand human behavior outside of the settings in which it occurs. In this study, all participants were in their normal work environments which provided them with ready reminders of the obstacles and motivations for choices regarding use of EAS disaster communication and warnings. The nature of the thick, rich, actual description of these carefully selected participants provided exceptionally revealing answers to the research question posed for this study.

<div align="center">Conclusion: Subtle but titanic shift and one lifeline of hope</div>

It appears that since 1981 there has been a slow, subtle, and now titanic shift away from required public service messages including EAS messages. The warning system originally designed in 1934 to alert the American public no longer exists in FCC regulation. EAS may have been intended to replace EBS – but it has not yet succeeded in providing consistency. This study suggests seven reasons: 1- EAS was federally designed for the president to communicate with the people. 2- All other messages are voluntary. 3- There is no taxpayer funding to buy or maintain the new equipment. 4- Computers, not people, make the decisions. 5- People program the machines, and can make mistakes. 6- If EAS broadcasts result in injuries, people might sue the stations and since local and state EAS broadcasts are not required it is legal and fiscally prudent to not run messages and avoid potential financial liability. 7- Participants lack an understanding of the system.

Other new technologies such as cell phones can be programmed to activate to EAS codes. NOAA weather radios can be purchased and programmed to respond to EAS codes. But unless such devices are available to broader audiences, programmed, and turned on the villagers are still at risk. Importantly, people may be at grave risk if they believe the language of the regular *EAS "test"* messages which *erroneously* provide assurance that "real" messages will be relayed.

<div align="center">*One example that offers hope*</div>

Evidence showed that advance regional media agreements may have saved lives in one case (Hammer B., Schmidlin, T. W., 2000). That research suggests that agreements acknowledging ethics and the needs of potential victims may improve reliability of emergency alert relays and public response (Hammer & Schmidlin, 2000).

<p style="text-align:center">Correct information can minimize deaths: knowledge is power</p>

Results from the lahar study could be significant to practitioners by sensitizing them to potential disaster communication gaps that can be acknowledged, understood and remedied. Unintended consequences of more than two decades of political actions can be addressed with other political action. At very least the current EAS the test message can be rewritten so that it is more accurate. A corrected message would say something like "This is a test of the ability of the EAS system to relay a message from the president of the United States. This station may or may not be available to relay warnings from local and state emergency officials"

Results of this study could be valuable to social or political philosophers and media ethicists by helping them recognize some new explanations for previous confusion related to widespread breakdowns of communication before, during and after catastrophic events. This study could also be of practical interest to homeland security communication experts, general communications researchers, system analysts, public policy regulators, professional broadcasters, and the general public. A humanistic benefit may also exist if further research leads to development of more consistent warning systems prior to a large tsunami in the U.S. similar to what happened in 2004 in South Asia, or another catastrophic local or multi-state event such as Hurricane Katrina.

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